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ABSTRACTS

1

DIETARTY EDUCATOIN IN TYPE 1 DIABETES EDUCATION (DAFNE) AND ALBUMINURIA CHANGE: KUWAIT'S EXPERIENCE

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The Dose Adjustment for Normal Eating (DAFNE) course is a structured education program that aims to teach type 1 diabetes to change their self care behaviors by estimating the carbohydrate content of food and adjusting their insulin doses accordingly in order to maintain metabolic control. Microalbuminura is well known to increase morbidity and mortality. DAFNE has been found to improve the gylcosylated haemoglobin but no dietician education porga has been shown to be effective on albuminurea. Our aim of this study was to investigate the effect of a DAFNE course on regression of albuminurea. Seventy two type 1 patients have completed DAFNE course in Kuwait led by dieticians. Twenty eight participants were positive for albuminuria prior to DAFNE Course. Carbohydrate counting skills resulted in improvement of HbA1c. Twnety participants had regression in their albuminuria without blood pressure intervention.

In conclusion, this study shows significantly improvement in albuminurea with sustained improvement in HbA1c through better carbohydrate skills. DAFNE course should prove cost effective with sustained glycemic profile and improvement of albuminuria and should become more widely available.

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2

EFFECT OF LOW-DOSE NIACIN ON DYSLIPIDEMIA, SERUM PHOSPHORUS LEVELS AND ADVERSE EFFECTS IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Niacin supplementation improves dyslipidemia and lowers serum phosphorus levels in chronic kidney disease (CKD) patients. However, its adverse effects, including hot flusing, hinder the administration of niacin. We evaluated whether low-dose niacin supplementation can improve dyslipidemia, lower serum phosphorus levels, and be administered with a low frequency of adverse effects in patients with CKD. We retrospectively analyzed the clinical records of CKD patients who had taken niacin from January, 2009 to June, 2011. We excluded patients with CKD1 and CKD 5. We then enrolled 31 CKD patients who had taken niacin at a fixed-dose of 500mg/day for 6 months. We also randomly selected 30 CKD patients who had been taking statin for 9 months as a control group. Among 34 CKD patients prescribed niacin, 5 patients (14%) complained of adverse effects, and 3 CKD patients (8%) discontinued niacin. There were no significant differences in baseline data between the niacin group and the control group. The proportion of patients in the niacin group who had been taking a statin, or omega-3 fatty acids was 67.7% and 48.8%, respectively. In the niacin group, high density lipoprotein cholesterol (HDL) levels was significantly increased ($p < 0.05$), and triglyceride ($p < 0.05$) at 12 weeks and 24 weeks compared to baseline levels. In the niacin group, phosphorous levels ($p < 0.05$) were significantly decreased, and glomerular filtration rate (GFR) was significantly increased ($p = 0.016$) at 24 weeks compared to baseline values; however, serum creatinine levels did not significantly change. Low dose niacin (500 mg/day) had a low freqeuncy of adverse effects and also improved dyslipidemia, lowered serum phosphorus levels, and increased GFR in CKD patients. Further studies are needed to evaluate the long term effects of low-dose niacin for renal progression of CKD.

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3

VASCULAR CALCIFICATION ON PLAIN RADIOGRAPHS IS ASSOCIATED WITH CAROTID INTIMA MEDIA THICKNESS, MALNUTRITION AND CARDIOVASCULAR EVENTS IN DIALYSIS PATIENTS

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Vascular calcification (VC) and carotid intima media thickness (CIMT) are highly correlated with cardiovascular (CV) disease. We hypothesized that significant VC on plain radiographs is associated with CIMT and CV events in dialysis patietns. In addition, we evaluated risk factors for VC progression on plain radiographs in dialysis patietns. In this two-year observational, prospective study, 67 dialysis patients were included. We checked plain radiographs at baseline and after 2 years. Laboratory tests and malnutrition score were obtained at baseline, after 1 year, and after 2 years. The mean age of dialysis patients was 56.3 $\pm$ 10.3 years and the duration of dialysis was 41.3 $\pm$ 34.5 months. The prevalence of significant VC was 61.2% and the prevalence of carotid artery atheromatous plaque was 36.6% in enrolled dialysis patients. The prevalence of carotid artery atheromatous plaque ($p = 0.025$), CIMT (right: $p = 0.045$, left: $p = 0.014$), malnutrition scores and CRP were significantly higher in patients with significant VC compared to patients without significant VC. Serum albumin and total iron binding capacity were significantly lower in patients with significant VC compared to patients without significant VC. During an mean observational period of 22 months there were 6 CV deaths and 17 patients suffered from CV events. Patients without significant VC showed lower CV events by the Kaplan-Meier method ($p = 0.015$). VC progression on plain radiographs was found in 35.7% among 56 patients followed up. Hemoglobin (Hb) was significantly increased according to elapsed time in patients who did not show VC progression on plain radiographs (10.3 g/dL at baseline, 10.8 g/dL after 1 year, 11.4 g/dL after 2 years). Hb (beta $= -0.458$, $p = 0.006$) after 2 years was an independent factor for VC progression on plain radiographs. In conclusion, significant VC on plain radiographs was associated with CIMT, malnutrition, inflammation and CV events in dialysis patients. Conditions maintaining adaquate Hb maybe retard VC progression on plain radiographs in dialysis patients.

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4

DIFFERENT ACUTE METABOLISM OF FRUCTOSE IN DIALYSIS PATIENTS COMPARED TO HEALTHY SUBJECTS

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The consumption of fructose has increased dramatically during the last two decades and parallels the epidemics of obesity, metabolic syndrome, diabetes and chronic kidney disease ADDIN EN.CITE ADDIN EN.CITE.DATA .

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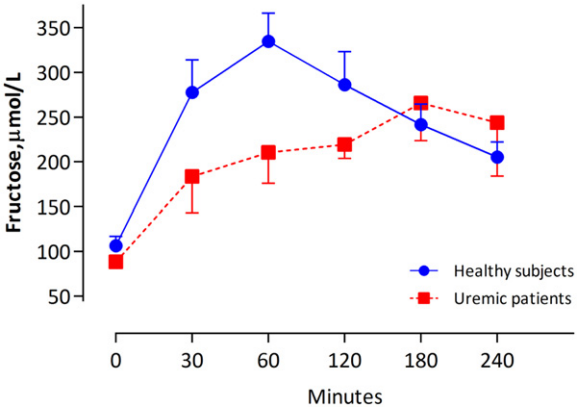
Fructose comes naturally e.g. in fruit and in honey, both sole as monosaccharide and as sucrose. High-fructose corn syrup is an American substitute for sucrose containing 55% fructose.

6 HD-patients and 9 healthy subjects consumed 190 ml cream and 75 g sucrose. Fructose and uric acid were analyzed postprandially during 240 min. For this study we used a new sensitive fructose assay.

Fat/carbohydrate loading resulted in different acute fructose responses (see figure) and whereas uric acid levels remained stable in controls, it increased by 10 % in HD patients.



We conclude that a fatty meal is associated with a delayed post-prandial fructose absorption and/or metabolism, as well as increased uric acid levels in HD patients. In an ongoing new study, the fructose metabolism will be further studied in CKD patients, diabetics and healthy controls.

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5
RELATIONSHIP BETWEEN FRUCTOSE CONTENT OF A NORMAL KUWAITI DIET AND THE OBESITY EPIDEMIC

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This project investigates the prevalence of fructose intake in a normal Kuwaiti diet. The prevalence of metabolic syndrome and obesity in Kuwait has been on the rise in the last 2 decades; at the moment just over 74 percent of the population is overweight or obese, according to the World Health Organization. Fructose intake has recently received considerable negative media attention, as the use of high fructose corn syrups has become more widely used. Fructose intake has been believed to be linked with a rise in Metabolic Syndrome and an increase in obesity. It has been considered that moderate fructose consumption of $\leq$50g/day or $\sim$10% of total energy has no harmful effect on lipids and of $\leq$100g/day does not influence body weight. In this study 60 adult participants filled out a two day detailed food diary including quantities. The diaries were then analyzed by a dietitian using the USDA nutrient database and the Food Processor program version 9.9.0, and the total fructose intake per day of the normal Kuwaiti diet was calculated. In addition a 24- hour urine collection for fructose was measured to correlate the results with the food diaries. Once the results were tabulated and verified, a mean fructose intake of 27.9 grams was calculated, ranging in daily fructose intakes from 2.8 g to 101.6g per day. In conclusion the results showed an average daily intake of 27.9 grams of fructose, which is lower than the estimated moderate intake therefore, cannot be the major cause of metabolic syndrome or obesity in Kuwait.

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6
PROTECTIVE EFFECTS OF ISOLATED SOY PROTEINFEEDING ON RENAL TUBULES IN THE EARLY STAGEOF DIABETIC NEPHROPATHY.

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Progression of diabetic nephropathy (DN) is strongly related to the severity of tubulointerstitial damage. Isolated soy protein (ISP) feeding has shown beneficial effects in animal DN models. However, the mechanisms underlying the renal effects of ISP feeding in early disease stages have not been clarified. In this study, 6-week-old obese Zucker (fa/fa) rats and lean control rats were fed 20% casein or 20% ISP diet for either 2 or 24 weeks. In casein-fed fa/fa rats, the levels of urinary markers of tubular injury started to increase 2 weeks after the commencement of experimental feeding, and the increase continued over time. The levels of these markers were significantly lower in ISP-fed fa/fa rats than in casein-fed fa/fa rats. Renal MCP-1, IL-1β, and TNF- α mRNA levels and urinary MCP-1 levels were also lower in ISP-fed fa/fa rats than in casein-fed fa/fa rats after 2 weeks. IL- 1β-induced upregulation of MCP-1 expression in cultured tubular NRK-52E cells was suppressed by ISP peptides produced by digestion with pepsin and trypsin, but not by casein peptides.

In conclusion, casein feeding induces tubular damage at the early stage of DN, whereas ISP feeding alleviates it. The renoprotective effects of ISP may be associated with the downregulation of renal inflammatory cytokines.

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7
BIOIMPEDANCE VECTOR ANALYSIS AS A TOOL FOR DETERMINATION AND ADJUSTMENT OF DRY WEIGHT IN HEMODIALYSIS PATIENTS

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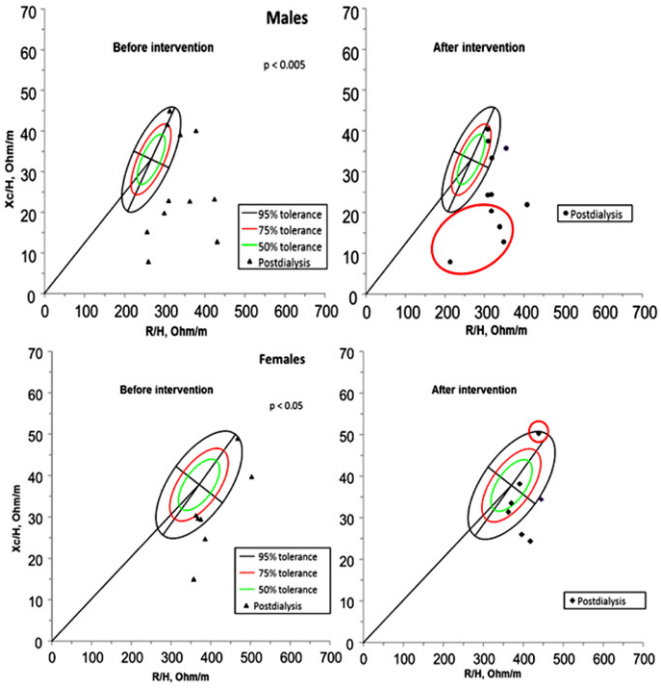
The hemodialysis (HD) patient is fluid overloaded, even when there is no apparent edema. Due to this, is vital to know the dry weight. No clinical or laboratory parameters are reliable, simple and accessible for this purpose. The bioelectrical impedance has been applied to estimate body fluids and dry weight. The purpose was to use the bioelectrical vector analysis (BIVA) as a tool to adjust the intensity of ultrafiltration and achievement of dry weight in HD patients. We performed monthly measurements of bioimpedance in 24 HD patients pre-and post-dialysis for four months. We plotted the patient's vectors in the RXc graph in order to meet individually hydration status and adjust the dry weight. Nutritional status was evaluated by Bilbrey Index. Adjustment on dry weight, was made in 18 patients, 13 of whom (72%) were able to reach it. The postdialysis vectors, migrated to upper quadrants, indicating adequate hydration. Postdialysis vectors at the end of the study were significantly different compared to baseline (Figure 1). Five patients didn't reach dry weight despite the adjustments, 4 were men with overhydration and 3 of them were severely malnourished. A woman remained dehydrated. In conclusion, the impedance vector analysis is a useful tool for adjusting dry weight in hemodialysis patients.



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